



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Nick Blount; Nathaniel Sekula</b>	<b>Project Number</b> <b>J0805</b>
<b>Project Title</b> <b>How Biodegradable Is Our Garbage?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine if paper, plastic, and organic material in household garbage is biodegradable.</p> <p><b>Methods/Materials</b> We collected household garbage from our homes. One bag we sorted and categorized into three groups: paper, plastic, and organic, and compared these ratios to the average household garbage collected by our city's waste company. We buried different combinations of garbage: food-only, paper-only, plastic-only, a whole bag of garbage sealed in a plastic bag and a whole bag of garbage enclosed in a paper bag; and buried them in seven different holes. We buried two duplicate combinations of food-only, but at different depths. We dug up the garbage nine months later and observed what remained.</p> <p><b>Results</b> The ratios of paper (50%), plastic (17%), and food (33%), by weight, from our household garbage was nearly the same when we compared it to the city of Lodi's: paper (60%), plastic (8%), and food (32%). All food biodegraded within nine months except for eggshells. This did not vary with different depths. Nothing biodegraded in the hole with plastic except a 6-pack holder. All the paper/cardboard biodegraded except for bits of a cardboard light bulb box. All the food had biodegraded and the paper was partially biodegraded in the sealed plastic garbage bag and everything in the bag was covered with soil nematodes. The remains of the paper bag of unsealed garbage contained only plastic, tin foil, and rubber.</p> <p><b>Conclusions/Discussion</b> Food and paper products are highly biodegradable, even in sealed plastic garbage bags. Plastic is not biodegradable but some plastic-like products are being made out of biodegradable materials like corn (why we believe the 6-pack holder biodegraded). Although things biodegraded in our experiment we learned that landfills do not have the right conditions for biodegradation. Paper makes up the largest component of landfills and is also the fastest growing component of landfills. Recycling only puts off the day something will be thrown away. It will become increasingly important to use post-consumer products and reduce waste at the source.</p>	
<b>Summary Statement</b> This project examines how biodegradable our household garbage is.	
<b>Help Received</b> Nathaniel's Mom did most of our typing, Nathaniel's Dad did the computer graphics, our school science advisor, Mr. Wyrick, identified the soil nematodes, we used land at Nathaniel's Dad's business to bury our garbage, Christine Wied conducted our tour of Lodi's Waste Treatment Operations (Central Valley Waste)	